

**REMARKS****Election/Restrictions**

Applicant notes that claim 35 has been withdrawn from consideration as being directed to a non-elected invention. In connection with that restriction, the Examiner said: "Applicant's election of Species I in Group A corresponds to Figure 20, which includes miter saws not table saws." That statement is incorrect if it is interpreted to mean that the claims currently under examination are limited to miter saws like the one shown in Figure 20. Applicant's prior election was to claims 25-27 and 29-34, and a number of those claims read on many types of woodworking machinery, including the miter saw embodiment shown in Figure 20, but also including table saws and other types of woodworking machinery. Withdrawn claim 35 depends from claim 25, which is a claim under examination, and claim 35 specifies, among other things, that the saw of claim 25 is a table saw. The Examiner is requested to inform applicant if further information concerning this issue is needed.

**Special Circumstances**

The Examiner asked applicant to point out any material information from the co-pending applications listed as parents to the instant application if the criteria for materiality applies and if the examination record provides reason for applicant to believe that the Examiner has not considered such information. Applicant is uncertain what the Examiner is requesting. The present application claims priority to two provisional applications, but not to other applications which may be thought of as parent applications. Applicant has filed a number of other patent applications, and applicant has previously identified those applications and believes that identification satisfies its

duty of disclosure. Nevertheless, in an attempt to respond to the request, applicant has attached to the end of this document as "Attachment 1" a list of its patent applications and its one Taiwanese patent (the list does not include the national phase filings of the listed PCT application). None of the listed applications have yet issued as patents. The Examiner is requested to inform applicant if further information concerning any of these applications is needed.

#### **Double Patenting**

The Examiner stated: "It should be noted that for the purpose of this office action the below rejections under 35 U.S.C. 101 (double patenting) are being made under the assumption that the applications were not commonly owned at the time of applicant's invention." (Office Action, 2.) Applicant is uncertain what the Examiner means by this statement. The double patenting rejections set forth in the Office Action were made under the judicially created doctrine of obviousness-type double patenting, not under 35 U.S.C. 101, so applicant does not understand why reference was made to that statute. Additionally, as far as applicant is aware, obviousness-type double patenting rejections are made between commonly owned applications so applicant does not understand why the assumption was made that the applications were not commonly owned. The Examiner is requested to inform applicant if further information concerning these points is needed.

The Examiner further stated: "Additionally, it should be noted that the below double patenting rejections are based upon known and available co-pending applications and although it is believed that all appropriate rejections have been made, Applicant's help in determining all appropriate double patenting rejections with all of

Applicant's applications is requested because of the large number of similar applications." (Office Action, 2.) Applicant is uncertain what help the Examiner is requesting. To the extent the Examiner is asking for identification of applicant's co-pending applications, then, as stated above, applicant has attached to the end of this document a list of its patent applications and its one Taiwanese patent. Additionally, to the extent that applicant is aware of any double patenting issue, applicant will take some action to address or defer the issue, such as by amending or canceling claims, by traversing the rejection, by filing a terminal disclaimer, or by taking some other action. The Examiner is requested to inform applicant if further information concerning this issue is needed.

Applicant understands that the specific double patenting rejections raised by the Examiner in connection with the present application may be withdrawn when they are the only rejections remaining in the application in order to allow the application to proceed to issuance. MPEP §804. Additionally, it is likely that a number of the cited claims of the co-pending applications have been or will be amended or cancelled without prejudice, and as a result, one or more of the double patenting rejections may now be or may become moot. In light of these facts, applicant requests that the discussion of the obviousness-type double patenting rejections be postponed pending resolution of the remaining issues discussed herein. If the remaining issues are resolved prior to the issuance of the other applications, then applicant requests that the double patenting rejections be withdrawn so that this application may proceed to issuance.

**Statement Under 37 CFR 1.78(c)**

The Examiner required applicant under 35 USC §103(c) and 37 CFR 1.78(c) to state whether the inventions claimed in the applications cited as the bases for the double patenting rejections were commonly owned at the time the invention claimed in the present application was made. In response, SD3, LLC states that the inventions claimed in the present application and in the co-pending applications cited by the Examiner were commonly owned or subject to an obligation of assignment to SD3, LLC at the time each later invention was made. The undersigned is authorized to make this statement on behalf of SD3, LLC. By making this statement applicant does not concede that the cited claims are conflicting claims or that the double patenting rejections are proper.

**Claim Rejections – 35 USC §102(f)**

The Examiner rejected claims 25-27 and 29-34 under 35 U.S.C. §102(f) by saying applicant did not invent the claimed subject matter. Specifically, the Examiner said, "It is not clear who actually invented the subject matter of claims 25-27 and 29-34 because the above co-pending applications [referring to the co-pending applications cited to support the double patenting rejections] have different inventive entities." (Office Action, 17.) This rejection is traversed.

The inventor named in the present application is the inventor of the subject matter claimed in the present application. Different inventive entities are named in a number of the co-pending applications cited by the Examiner because other individuals made contributions to the subject matter of at least one claim of each such application. The fact that inventive entities may be different in various applications does not mean

that inventorship is incorrect in the present application. Often applications with overlapping subject matter but with additional disclosures and differing sets of claims have different inventive entities. That is the situation here. The present application and the co-pending applications cited by the Examiner have disclosures and claims that differ and that require the naming of different inventive entities. Thus, there is no inconsistency in inventorship and applicant requests the rejection under 35 U.S.C. 102(f) be withdrawn.

#### **Claim Rejections – 35 USC §103**

The Examiner rejected claims 25 and 26 under 35 U.S.C. §103(a) as obvious in light of U.S. Patent No. 5,285,708 to Bosten et al. or U.S. Patent No. 5,724,875 to Meredith in view of U.S. Patent No. 3,785,230 to Lokey and U.S. Patent No. 4,512,224 to Terauchi. That rejection is traversed.

Claims 25 and 26 describe a saw with “a detection system configured to detect a dangerous condition between a person and the blade,” and “a reaction system including a brake to decelerate the blade upon detection of the dangerous condition between the person and the blade, where the reaction system is configured to use at least a fraction of the angular momentum of the blade to generate a force tending to urge the axis around which the blade rotates away from the work surface when the brake decelerates the blade.” Urging the axis around which the blade rotates away from the work surface mitigates the dangerous condition and thereby makes the saw safer. For example, in a table saw, the dangerous condition may be proximity between a person and the blade and the reaction system may retract the blade below the table to minimize any potential injury. In a miter saw, the dangerous condition may be contact between a person and

the blade and the reaction system may cause the blade to move away from the work surface to minimize any potential injury. As stated in these claims, the reaction system is configured to use at least a fraction of the angular momentum of the blade to generate the force tending to urge the blade away from the work surface. Nothing in the prior art shows or suggests this combination.

Bosten shows a miter saw that projects a light onto a workpiece to show where the blade will engage the workpiece. Meredith shows a miter saw with an improved blade guard. Neither reference shows or suggests any type of detection or reaction system.

Lokey discloses a system to detect when a person approaches too close to the blade of either a hand-held circular saw or a table saw, and Lokey discloses brake systems for those saws to stop the blade if that proximity is detected. Lokey does not show or suggest any system to urge the blade away from the work surface.

Terauchi discloses a slitter machine to cut material such as cotton cloth that is rolled onto a tube. The roll is held horizontal and a blade moves forward to cut the roll. The blade will advance until a limit switch contacts a stop, at which point the blade will move back. If the limit switch fails, then the blade will continue to move forward without stopping until it contacts the rod supporting the roll. If that contact occurs, a current will pass from the blade through the rod to signal the blade to move back and/or stop. Terauchi uses a motor M1 to turn a screw 11 to move the blade back and it uses an electromagnetic brake to stop the rotation of the blade.

Applicant asserts that the Terauchi reference should not be considered because it is non-analogous art and therefore outside the proper scope and content of the art.

MPEP §2141.01(a). Terauchi is non-analogous art because it is outside the field of applicant's endeavor and because it is not reasonably pertinent to the particular problem addressed by the pending claims, namely, detecting a dangerous condition between a person and a blade and using a reaction system to urge the blade away from the work surface when the dangerous condition is detected. MPEP §2141.01(a). Thus, Terauchi should not be considered in an obviousness analysis of the currently pending claims. Nevertheless, even if Terauchi is considered, it still fails to show or suggest a reaction system configured to use the angular momentum of the blade to urge the blade away from a work surface.

Thus, none of the cited references teach, suggest, or even mention a reaction system configured to use the angular momentum of a spinning blade "to generate a force tending to urge the axis around which the blade rotates away from the work surface when the brake decelerates the blade," as required by applicant's claims 25 and 26. That is a significant difference. As stated, a reaction system configured to urge the blade away from the work surface, as required by claims 25 and 26, mitigates the dangerous condition and thereby makes the saw safer. Because the cited references fail to teach or suggest this claim limitation, the references cannot by themselves support a conclusion of obviousness. MPEP §2143.03.<sup>1</sup>

Additionally, in order to establish obviousness, "there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine

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<sup>1</sup> "To establish prima facie obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art." MPEP §2143.03.

reference teachings." MPEP §2143. That means there must be some suggestion or motivation to combine the detection and braking systems of Lokey with the miter saws of Bosten or Meredith so that the miter saws include a reaction system configured as set forth in claims 25 and 26. However, none of the cited references teach or suggest any reason to modify the saws of Bosten or Meredith so that they include a reaction system configured to use the angular momentum of the blade to urge the blade away from a work surface. In fact, none of the references even recognize that the angular momentum of the blade can be used to urge the blade away from the work surface when a dangerous condition is detected. None of the references even identify the problem that if the blade of a saw is stopped quickly in response to a dangerous condition, then its angular momentum may cause it to jerk toward a work surface and create a more dangerous condition. The references are simply silent on these issues. That silence shows that there is no teaching, suggestion or motivation to configure a saw as set forth in applicant's claims 25 and 26.

Even if the brake system of Lokey or Terauchi were included in a miter saw of Bosten or Meredith, the resulting combination would not result in a reaction system configured to use the angular momentum of the blade to urge the blade away from a work surface. To the contrary, the combination would cause the blade of the miter saw to move *toward* the work surface due to the conservation of angular momentum. That is because the angular momentum of the spinning blade would transfer through the brake to the pivot arm of the miter saw when the brake stopped the blade, as explained in applicant's specification on page 52. The pivot arm would then try to spin in the same direction as the blade due to the conservation of angular momentum, and that would



urge the pivot arm down toward the work surface, not away from it, because that is the only movement the pivot arm can make that is in the same direction as the blade was spinning. (Declaration of Stephen F. Gass, ¶ 8, submitted previously.)

It is only by looking at applicant's disclosure that one learns how to construct a saw with a reaction system configured to use the angular momentum of the blade to urge the blade away from a work surface. But in an obviousness analysis, one must review the prior art without the benefit of applicant's disclosure. One cannot use the teaching of applicant's disclosure to suggest the modification to the prior art. The law is "clear that the best defense against the subtle but powerful attraction of a hindsight-based obviousness analysis is rigorous application of the requirement for a showing of the teaching or motivation to combine prior art references." In re Dembiczak, 175 F.3d 994, 999, 50 USPQ2d 1614, 1617 (Fed. Cir. 1999) (citations omitted). Additionally, a suggestion, teaching or motivation to combine or modify references "must be clear and particular." Id. (citation omitted). There is no clear and particular suggestion, teaching or motivation to combine the cited references to arrive at applicant's claims 25 and 26, and therefore, the obviousness rejection should be withdrawn.

Nevertheless, the Examiner says it would be obvious "to use a detection system and a braking system, as taught by Lokey and Terauchi with the devices of Bosten et al. or Meredith et al. such that the angular momentum of the blade is used to urge the blade away from the work surface in order to prevent injury to the user by retracting the blade upon detection of a dangerous condition." (Office Action, 18-19.) But the references themselves do not support that conclusion. As stated, no cited reference suggests that a reaction system can be configured to use the angular momentum of the

blade to urge the blade away from a work surface. To the contrary, if the brake of Lokey or Terauchi were used on a miter saw as disclosed in Bosten or Meredith, then the angular momentum of the brake would urge the blade *toward* the work surface, not away from it, when the brake stopped the blade, as explained above. The Examiner, however, says: "The modified devices of Bosten et al. and Meredith et al. are clearly capable of using part of the angular momentum of the blade to generate a force urging the axis away from the work surface based upon the location of the brake on the blade housing, the speed of rotation of the blade, the length of the pivot arm, the weight of the pivot arm, the location of the arm relative to the work surface, location of the brake in the radial direction of the blade." (Office Action, 19.) The Examiner does not explain this statement, nor does he cite any reference supporting the statement, but he seems to be saying that if the brake of Lokey or Terauchi were installed in the miter saw of Bosten or Meredith, and the brake stopped the blade, then the angular momentum of the blade would urge the blade away from a work surface if the brake was properly located, the blade was spinning at the proper speed, the pivot arm was the proper length and weight, etc.

That assertion is incorrect. The location of the brake on the brake housing around the blade, or the location of the brake in the radial direction of the blade, would not change the downward direction of the movement of the pivot arm because the angular momentum of the blade would still be transferred to the pivot arm when the brake stops the blade. (Second Declaration of Dr. Stephen F. Gass, ¶ 6.) The speed of rotation of the blade would only affect the magnitude of the force urging the pivot arm down, not its downward direction. Id. The length and weight of the pivot arm would

affect the magnitude of the resulting downward acceleration of the pivot arm, not the downward direction of the resulting force. Id. The location of the pivot arm relative to the work surface also will not affect the downward force – the force will still urge the pivot arm toward the work surface regardless of whether the pivot arm is near the top or bottom of its range of motion. Id.

The Examiner also questions how saws configured as set forth in applicant's claims 25 and 26 can use the angular momentum of the blade to urge a blade away from a work surface while the prior art saws cannot. The Examiner asked: "Applicant's declaration further contends that any braking of the blade of Bosten et al. would cause the pivot arm to move downward no matter where the brake is placed on the device of Bosten et al. If this is the case what structure allows the instant application to move upward when the brake would/could be located in similar locations." (Office Action, 21.) The structure that causes the woodworking equipment covered by applicant's claims 25 and 26 to urge the blade away from the work surface is the reaction system recited in the claims.<sup>2</sup> Examples of such reaction systems are discussed in applicant's specification on pages 47-55 and shown in the depicted embodiments. One specific example of a reaction system for a table saw is shown in Figure 18 and discussed in the corresponding text. Specific examples of reaction systems for miter saws include a pivotal motor/blade assembly as shown in Figure 20 and a two-swing arm assembly as shown in Figure 22. Of course, other examples are also possible and a number of them are discussed in applicant's specification.

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<sup>2</sup> Applicant amended its claims to require a "reaction system" instead of a "brake system" in part to address the Examiner's question as to what structure urges the blade away from a work surface. Applicant also made that change to better define the claims.

The reaction system limitation in claims 25 and 26 was written so that it would cover all these various embodiments as well as any other reaction system configured as specified. The limitation was not written to be limited to only one specific embodiment. As far as applicant is aware, writing limitations to cover numerous possible embodiments is permitted and nothing requires a limitation to be written to cover exemplary structures only. Of course, writing a limitation to cover numerous possible embodiments increases the chance that a structure meeting the limitation might be found in the prior art; but the limitation is not improper simply because it is written to have a broad scope of coverage. In the case at hand, applicant recognizes that the prior art includes the brake systems disclosed in Lokey and Terauchi (although applicant asserts that the brake systems of Terauchi are non-analogous), but those prior art systems are simply not configured as set forth in applicant's claims 25 and 26 to use the angular momentum of the blade to urge the blade away from a work surface.

Applicant previously submitted a declaration of Dr. Stephen F. Gass as evidence that the combination of the Bosten and Lokey patents would not function as stated by the Examiner. The Examiner criticized that declaration by saying it expressed only opinions without any supporting facts. However, the prior declaration did set forth facts. For example, Dr. Gass declared: "I have actually built and tested miter saws similar in construction to the one shown in Bosten with brake systems mounted adjacent the blade. In each test, the blade would move toward the work surface of the miter saw with significant force when the brake engaged the blade." (Declaration of Stephen F. Gass, ¶9, submitted previously.)

In the current Office Action the Examiner asked how the miter saws Dr. Gass tested were similar to those disclosed in Bosten. Applicant is submitting a second declaration of Dr. Stephen F. Gass that responds to that question. Each miter saw Dr. Gass tested included a base having a work surface, a support arm pivotally attached to the base and extending above the base, a blade supported by the support arm, and a motor mounted to the support arm to spin the blade, just as in the miter saws shown in Bosten. The blade and support arm on each miter saw Dr. Gass tested was configured to pivot down toward a workpiece on the work surface, just as in the miter saws shown in Bosten. (Second Declaration of Dr. Stephen F. Gass, ¶ 7.)

Dr. Gass' second declaration also explains that a standard DeWalt miter saw Model DW750 can be used to demonstrate that the blade will move toward the work surface when it is stopped from spinning. The DeWalt DW750 miter saw is a standard miter saw with a base, a support arm pivotally supported by and extending above the base, a blade supported by the support arm, and a motor mounted on the support arm to spin the blade. A user operates the saw by grasping a handle on the end of the support arm away from the pivot point and pulling a trigger to cause the motor to spin the blade. The user pivots the support arm and spinning blade down into contact with a workpiece on the work surface to make a cut. The miter saw also includes a motor brake to decelerate the blade when the operator releases the trigger. When the blade decelerates, the angular momentum of the blade urges the support arm and blade downward toward the work surface. That urging can be felt by a person holding the handle of the saw because the pivot arm of the saw will move down noticeably. Dr. Gass declares that he has personally experienced that downward motion many

times. (Second Declaration of Dr. Stephen F. Gass, ¶ 8.) This downward motion confirms that the angular momentum of the spinning blade causes the pivot arm and blade to move toward a work surface when the blade is decelerated.

The Examiner also rejected claims 27, 29 and 30 under 35 U.S.C. §103(a) as obvious in light of Bosten or Meredith in view of Lokey and Terauchi. That rejection is traversed. Claims 27, 29 and 30 all require "a detection system adapted to detect contact between a person and the blade; and a reaction system adapted to urge the axis around which the blade rotates away from the work surface upon the detection of the contact." These claims are not obvious because the cited references fail to teach or suggest "a detection system adapted to detect *contact* between a person and the blade" or a reaction system adapted to respond "upon the detection of the contact." As stated, Bosten and Meredith fail to disclose any detection system. Lokey discloses a proximity detection system, not a contact detection system, and there is no indication or teaching that the detection system of Lokey could detect contact. Terauchi discloses a system to detect when a blade contacts a metal support rod; it does not disclose a system to detect contact between a person and the blade or a reaction system adapted to act upon the detection of such contact. Because the cited references fail to teach or suggest these claim limitations, the references cannot by themselves support a conclusion of obviousness. MPEP §2143.03. The current Office Action does not address these points of distinction.

The Examiner also rejected claims 31-34 under 35 U.S.C. §103(a) as obvious in light of Bosten or Meredith in view of Lokey and Terauchi. That rejection is traversed. These claims all require "a detection system adapted to detect contact between a

person and the blade; and a reaction system adapted to limit movement of the blade into the work zone upon the detection of the contact." As explained, the cited references fail to show or suggest a detection system that detects contact between a person and the blade or a reaction system as specified. Therefore, the references cannot by themselves support a conclusion of obviousness. MPEP §2143.03.

Claim 33 also requires "a pivot joint between the support arm and base and adapted to allow the support arm to pivot relative to the base, where the blade has a rotational axis, where the blade has a front portion defined as that portion beyond the rotational axis away from the pivot joint, and where the pawl is adapted to engage the blade at a position on the front portion of the blade." The Examiner recognizes that Lokey does not teach positioning a brake on the "front portion" of a blade away from a pivot joint because Lokey fails to disclose a miter saw with a pivot joint. Nevertheless, the Examiner says "the pivot arm would be the arm of the user" and with that assumption, the claimed configuration would be obvious in light of Lokey. (Office Action, 19.) However, the support arm of claim 33 cannot be an arm of a user because claim 33 also requires "a pivot joint between the support arm and base adapted to allow the support arm to pivot relative to the base." A user's arm does not meet that limitation. This is another point of distinction between claim 33 and the cited references.

In summary, the cited references fail to teach or suggest the "reaction system" limitation set forth in claims 25 and 26, the "detection system" and "reaction system" limitations of claims 27 and 29-34, or the limitations of claim 33. The cited references also fail to provide any teaching, suggestion or motivation to combine the references as set forth in applicant's claims. Finally, even if there were a suggestion to combine the

references, the resulting combination would not result in reaction systems as required by applicant's claims because the brake in the resulting prior art combination would move the blade toward a work surface. The fact that the currently pending claims are non-obvious is also supported by the objective indicia of non-obviousness submitted previously.

**Withdrawn Claims 28 and 35**

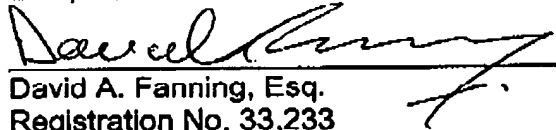
Applicant requests that withdrawn claim 28 be reinstated if claim 27 is allowed because it depends from that claim, and applicant further requests that withdrawn claim 35 be reinstated and amended as set forth above if claim 31 is allowed because it depends from that claim.

**CONCLUSION**

Applicant has addressed the Examiners comments and questions concerning other pending applications, double patenting and inventorship. Additionally, the cited references fail to disclose all the limitations of the currently pending claims, and there is no teaching, suggestion, or motivation to combine the references as set forth in applicant's claims. Therefore, the obviousness rejections should be withdrawn and the application should proceed to issuance. Please call the undersigned with any questions.

Respectfully submitted,

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Serial No. 09/676,190



**Attachment 1**

<u>Title</u>	<u>Serial No./ Publication No.</u>	<u>Filing Date/ Publication Date</u>
Detection System For Power Equipment	09/929,426 2002-0017176-A1	August 13, 2001 February 14, 2002
Contact Detection System For Power Equipment	60/225,200	August 14, 2000
Apparatus And Method For Detecting Dangerous Conditions In Power Equipment	09/929,221 2002-0017336-A1	August 13, 2001 February 14, 2002
Apparatus And Method For Detecting Dangerous Conditions In Power Equipment	60/225,211	August 14, 2000
Firing Subsystem For Use In A Fast-Acting Safety System	09/929,240 2002-0020263-A1	August 13, 2001 February 21, 2002
Firing Subsystem For Use In A Fast-Acting Safety System	60/225,056	August 14, 2000
Spring-Biased Brake Mechanism For Power Equipment	09/929,227 2002-0020271-A1	August 13, 2001 February 21, 2002
Spring-Biased Brake Mechanism For Power Equipment	60/225,170	August 14, 2000
Brake Mechanism For Power Equipment	09/929,241 2002-0017180-A1	August 13, 2001 February 14, 2002
Brake Mechanism For Power Equipment	60/225,169	August 14, 2000
Retraction System For Use In Power Equipment	09/929,242 2002-0017181-A1	August 13, 2001 February 14, 2002
Retraction System For Use In Power Equipment	60/225,089	August 14, 2000
Replaceable Brake Mechanism For Power Equipment	09/929,236 2002-0020261-A1	August 13, 2001 February 21, 2002
Replaceable Brake Mechanism For Power Equipment	60/225,201	August 14, 2000
Brake Positioning System	09/929,244 2002-0017182-A1	August 13, 2001 February 14, 2002
Brake Positioning System	60/225,212	August 14, 2000
Logic Control For Fast-Acting Safety System	09/929,237 2002-0020262-A1	August 13, 2001 February 21, 2002
Logic Control For Fast-Acting Safety System	60/225,059	August 14, 2000

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Serial No. 09/676,190

<u>Title</u>	<u>Serial No./ Publication No.</u>	<u>Filing Date/ Publication Date</u>
Motion Detecting System For Use In A Safety System For Power Equipment	09/929,234 2002-0017178-A1	August 13, 2001 February 14, 2002
Motion Detecting System For Use In A Safety System For Power Equipment	60/225,094	August 14, 2000
Translation Stop For Use In Power Equipment	09/929,425 2002-0017175-A1	August 13, 2001 February 14, 2002
Translation Stop For Use In Power Equipment	60/225,210	August 14, 2000
Translation Stop For Use In Power Equipment	60/233,459	September 18, 2000
Cutting Tool Safety System	09/929,226 2002-0017183-A1	August 13, 2001 February 14, 2002
Cutting Tool Safety System	60/225,206	August 14, 2000
Table Saw With Improved Safety System	09/929,235 2002-0017184-A1	August 13, 2001 February 14, 2002
Table Saw With Improved Safety System	60/225,058	August 14, 2000
Miter Saw With Improved Safety System	09/929,238 2002-0017179-A1	August 13, 2001 February 14, 2002
Miter Saw With Improved Safety System	60/225,057	August 14, 2000
Fast Acting Safety Stop	60/157,340	October 1, 1999
Safety Systems For Power Equipment	09/676,190	September 29, 2000
Fast-Acting Safety Stop (Taiwan)	143466	February 25, 2002
Fast-Acting Safety Stop	60/182,866	February 16, 2000
Safety Systems for Power Equipment (PCT)	PCT/US00/26812	September 29, 2000
Miter Saw With Improved Safety System	10/052,806 2002-0059855-A1	January 16, 2002 May 23, 2002
Miter Saw With Improved Safety System	60/270,942	February 22, 2001
Contact Detection System For Power Equipment	10/053,390 2002-0069734-A1	January 16, 2002 June 13, 2002
Contact Detection System For Power Equipment	60/270,011	February 20, 2001

<u>Title</u>	<u>Serial No./ Publication No.</u>	<u>Filing Date/ Publication Date</u>
Power Saw With Improved Safety System	10/052,273 2002-0059853-A1	January 16, 2002 May 23, 2002
Power Saw With Improved Safety System	60/270,841	February 22, 2001
Table Saw With Improved Safety System	10/052,705 2002-0056350-A1	January 16, 2002 May 16, 2002
Table Saw With Improved Safety System	60/273,177	March 2, 2001
Miter Saw With Improved Safety System	10/052,274 2002-0059854-A1	January 16, 2002 May 23, 2002
Miter Saw With Improved Safety System	60/273,178	March 2, 2001
Miter Saw With Improved Safety System	10/050,085 2002-0056349-A1	January 14, 2002 May 16, 2002
Miter Saw With Improved Safety System	60/273,902	March 6, 2001
Miter Saw With Improved Safety System	10/047,066 2002-0056348-A1	January 14, 2002 May 16, 2002
Miter Saw With Improved Safety System	60/275,594	March 13, 2001
Safety Systems For Power Equipment	60/275,595	March 13, 2001
Miter Saw With Improved Safety System	10/051,782 2002-0066346-A1	January 15, 2002 June 6, 2002
Miter Saw With Improved Safety System	60/279,313	March 27, 2001
Safety Systems for Power Equipment	10/100,211 2002-0170399-A1	March 13, 2002 November 21, 2002
Safety Systems For Power Equipment	60/275,583	March 13, 2001
Router With Improved Safety System	10/197,975 2003-0015253-A1	July 18, 2002 January 23, 2003
Router With Improved Safety System	60/306,202	July 18, 2001
Translation Stop For Use In Power Equipment	09/955,418 2002-0020265-A1	September 17, 2001 February 21, 2002
Translation Stop For Use In Power Equipment	60/292,081	May 17, 2001
Band Saw With Improved Safety System	10/146,527 2002-0170400-A1	May 15, 2002 November 21, 2002
Band Saw With Improved Safety System	60/292,100	May 17, 2001

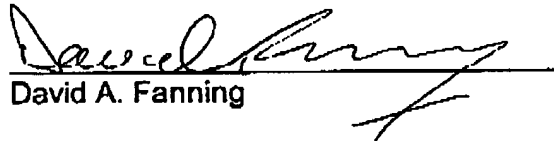
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<u>Title</u>	<u>Serial No./ Publication No.</u>	<u>Filing Date/ Publication Date</u>
Apparatus And Method For Detecting Dangerous Conditions In Power Equipment	10/172,553 2002-0190581-A1	June 13, 2002 December 19, 2002
Apparatus And Method For Detecting Dangerous Conditions In Power Equipment	60/298,207	June 13, 2001
Discrete Proximity Detection System	10/189,031 2003-0002942-A1	July 2, 2002 January 2, 2003
Discrete Proximity Detection System	60/302,937	July 2, 2001
Actuators for Use in Fast-Acting Safety Systems	10/189,027 2003-0005588-A1	July 2, 2002 January 9, 2003
Actuators For Use In Fast-Acting Safety Systems	60/302,916	July 3, 2001
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<u>Title</u>	<u>Serial No./ Publication No.</u>	<u>Filing Date/ Publication Date</u>
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Retraction System And Motor Position For Use With Safety Systems For Power Equipment	60/452,159	March 5, 2003
Table Saws With Safety Systems And Blade Retraction	60/496,550	August 20, 2003
Brake Cartridges For Power Equipment	60/496,574	August 20, 2003
Switch Box For Power Tools With Safety Systems	60/533,598	December 31, 2003
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Brake Cartridges And Mounting Systems For Brake Cartridges	60/533,575	December 31, 2003
Improved Table Saws With Safety Systems and Systems to Mount and Index Attachments	60/540,377	January 29, 2004

**CERTIFICATE OF TRANSMISSION/MAILING**

I hereby certify that this correspondence is being deposited with the U.S. Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, or facsimile transmitted to the U.S. Patent and Trademark Office to number (703) 872-9306, attention Examiner Boyer D. Ashley, on the date shown below.

Date: March 31, 2004  
David A. Fanning

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Application of  
**STEPHEN F. GASS**

Date: March 31, 2004

Serial No.: 09/676,190

Examiner Boyer D. Ashley

Filed: September 29, 2000

Group Art Unit 3724

For: SAFETY SYSTEMS FOR POWER EQUIPMENT

To: Commissioner for Patents  
Attention: Examiner Boyer D. Ashley  
Group Art Unit 3724  
P.O. Box 1450  
Alexandria, Virginia 22313-1450

**SECOND DECLARATION OF DR. STEPHEN F. GASS**

I, Dr. Stephen F. Gass, declare as follows:

1. I am the named inventor in the above-identified application.
2. The claims currently pending in the above-identified application describe a saw or woodworking machine having a system to detect a dangerous condition or contact between a person and a blade and a system to urge the blade away from a work surface or to limit the movement of the blade into a work zone. Urging the blade away from the work surface, or limiting the movement of the blade into the work zone, reduces the potential for a serious injury when a person contacts the blade.
3. In an Office Action mailed December 31, 2003, the Examiner rejected all pending claims in the above-identified application under 35 U.S.C. §103(a) in light of U.S. Patent No. 5,285,708 to Bosten et al. or U.S. Patent No. 5,724,875 to Meredith in view of U.S. Patent No. 3,785,230 to Lokey and U.S. Patent No. 4,512,224 to Terauchi. The Examiner asserts that the combination of those references would result in a saw

Page 1- **SECOND DECLARATION OF DR. STEPHEN F. GASS**  
Serial No. 09/676,190

with a brake that would urge the blade away from a work surface or work zone. I am filing this declaration to traverse that rejection and to submit evidence relevant to that rejection.

4. My educational background is in physics. In 1986 I earned a Bachelor of Science degree in physics from Oregon State University, and graduated summa cum laude. In 1990 I was awarded a Ph.D. degree in physics from the University of California San Diego.

5. I previously submitted a declaration in response to a prior office action in connection with this application. I reaffirm my statements made in that prior declaration.

6. I am aware that in the Office Action dated December 31, 2003, the Examiner asserted: "The modified devices of Bosten et al. and Meredith et al. are clearly capable of using part of the angular momentum of the blade to generate a force urging the axis away from the work surface based upon the location of the brake on the blade housing, the speed of rotation of the blade, the length of the pivot arm, the weight of the pivot arm, the location of the arm relative to the work surface, location of the brake in the radial direction of the blade." That assertion is incorrect. The location of the brake on the brake housing around the blade, or the location of the brake in the radial direction of the blade, would not change the downward direction of the movement of the pivot arm because the angular momentum of the blade would still be transferred to the pivot arm when the brake stops the blade. The speed of rotation of the blade would only affect the magnitude of the force urging the pivot arm down, not its downward direction. The length and weight of the pivot arm would affect the magnitude of the resulting downward acceleration of the pivot arm, not the downward direction of the resulting



force. The location of the pivot arm relative to the work surface also will not affect the downward force – the force will still urge the pivot arm toward the work surface regardless of whether the pivot arm is near the top or bottom of its range of motion.


7. In my prior declaration is explained that I had actually built and tested miter saws similar in construction to the one shown in the Bosten reference with brake systems mounted adjacent the blade, and in each test the blade would move toward the work surface of the miter saw with significant force when the brake engaged the blade. Each miter saw I tested included a base having a work surface, a support arm pivotally attached to the base and extending above the base, a blade supported by the support arm, and a motor mounted to the support arm to spin the blade, just as in the miter saws shown in Bosten. The blade and support arm on each miter saw I tested was configured to pivot down toward a workpiece on the work surface, just as in the miter saws shown in Bosten.

8. I have also used a standard DeWalt miter saw Model DW750 to demonstrate how the blade of a miter saw will be urged toward the work surface when it decelerates quickly. I personally own a DeWalt DW750 miter saw. It is a standard miter saw with a base, a support arm pivotally supported by and extending above the base, a blade supported by the support arm, and a motor mounted on the support arm to spin the blade. A user operates the saw by grasping a handle on the distal end of the support arm and pulling a trigger to cause the motor to spin the blade. The user pivots the support arm and spinning blade down into contact with a workpiece on the work surface to make a cut. The miter saw also includes a motor brake to decelerate the blade when the operator releases the trigger. When the blade decelerates, the angular

momentum of the blade urges the support arm and blade downward toward the work surface. That urging can be felt by a person holding the handle of the saw because the pivot arm of the saw will move down noticeably. I have personally experienced that downward motion many times. This downward motion demonstrates that the angular momentum of the spinning blade causes the pivot arm and blade to move toward a work surface when the blade is decelerated in a standard miter saw.

9. I hereby declare that all statements made herein of my own knowledge are true and all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this verified statement is directed.

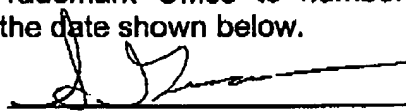
Date: March 31, 2004

  
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Dr. Stephen F. Gass

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Date: March 31, 2004

  
\_\_\_\_\_  
Stephen F. Gass

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Serial No. 09/676,190